CLAIMS

1. A dragline excavator bucket control system, said system comprising:

a pair of hoist ropes and a drag rope, said system characterized in that said hoist ropes are supported on said boom adjacent a free end thereof at spaced support positions and said hoist ropes are coupled adjacent opposite ends of a dragline bucket whereby said hoist ropes are substantially parallel and the line connecting said boom support points and the line connecting said bucket attachment points are substantially parallel when said bucket is in an optimal transport attitude for said bucket.

2. A control system as claimed in claim 1 including a support system having four spaced support points in side elevation forming a quadrilateral shape.

3. A control system as claimed in claim 2 wherein in use, said four points of said support system define a substantially parallelogram shape.

4. A control system as claimed in claim 1 wherein said bucket, in use, is urged between a transport position and a dumping position by a dumping mechanism said dumping mechanism being operable by lengthening one of said hoist ropes relative to the other hoist rope whereby gravitational forces cause movement of said bucket between a transport position and a dumping position.

5. A control system as claimed in claim 4 wherein lengthening

of one hoist rope relative to the other hoist rope is effected by separately controllable hoist rope drums.

6. A control system as claimed in claim 5 wherein the separately controllable hoist rope drums are operated by a common drive.

7. A control system as claimed in claim 5 wherein the separately controllable hoist rope drums are operated by respective drives.

8 A control system as claimed in claim 5 wherein the separately controllable hoist rope drums are coupled by a selective engagement mechanism to permit, in use, a predetermined degree of differential relative rotation between said separately controllable hoist rope drums.

9. A control system as claimed in claim 8 wherein the selective engagement mechanism comprises a clutch mechanism.

10. A control system as claimed in claim 8 wherein the selective engagement mechanism may comprises a differential gear assembly.

11. A control system as claimed in claim 4 wherein the bucket, in use, is urged between a transport position and a dumping position by relative movement between spaced upper support positions for said hoist ropes.

12. A control system as claimed in claim 4 wherein a self compensating hoist rope take up system restores the bucket to a carry

position under the influence of potential energy stored in said hoist rope take up system.

13. A control system as claimed in claim 12 wherein the self compensating hoist rope take up system may comprise a suspended mass.

14. A control system as claimed in claim 12 wherein the take up system comprises a spring biassing mechanism.

15. A control system as claimed in claim 12 wherein the take up system comprises a hydraulic biassing mechanism.

16. A control system as claimed in claim 12 wherein said hydraulic biassing system includes a pressure accumulating chamber.

17. A control system as claimed in claim 12 wherein the self compensating take up system is selected from any combination of a suspended mass, a spring biassing mechanism and/or a hydraulic biassing mechanism.

18. A control system as claimed in claim 4 wherein the bucket, in use, is urged between a transport position and a dumping position by a powered system effective to cause relative shortening of one hoist rope relative to the other.

19. A control system as claimed in claim 18 wherein one of said hoist ropes is shortened relative to the other by a powered sheave mechanism contactable with said hoist rope.

20. A control system as claimed in claim 18 wherein one of said hoist ropes is shortened relative to the other by selective rotation

of a sheave support arm pivotally mounted adjacent a free end of an excavator boom.

21. A method of operating a dragline excavator wherein a pair of hoist ropes are coupled adjacent opposite ends of a dragline bucket, said hoist ropes being supported at spaced support positions on a boom of said excavator, whereby relative movement of one hoist rope relative to the other hoist rope permits selective optimisation of a transport attitude of said dragline bucket.

22. A method as claimed in claim 21 wherein selective dumping of bucket contents is achieved by selective relative movement of one hoist rope relative to another.

23. A method as claimed in claim 22 wherein said bucket is urged between a transport position and a dumping position by selectively lengthening or shortening of one of said pair of hoist ropes relative to the other hoist rope of said pair.

24. A method as claimed in claim 21 wherein each of said pair of hoist ropes is coupled to a respective separately controllable hoist rope drum.

25. A method as claimed in claim 24 wherein each hoist rope drum is selectively operable from a common drive.

26. A method as claimed in claim 24 wherein each hoist rope drum is selectively operable by a respective drive.